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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/501,209	01/06/2005	Robert Furst	MAIKP141WOUS	3577

7590 04/21/2008
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EXAMINER

HA, NATHAN W

ART UNIT	PAPER NUMBER
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2814

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04/21/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/501,209	Applicant(s) FURST ET AL.	
	Examiner Nathan W. Ha	Art Unit 2814	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 February 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 14-21 and 28-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 14-21 and 28-32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>2/08</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 14-19 and 28-32 are rejected under 35 U.S.C. 102(b) as being anticipated by Uchida (US 5,535,296, newly cited.)

In regard to claim 14, in fig. 4, Uchida discloses a photodiode arrangement, comprising:

a photodiode, or diode array, 30; and

a submount 32 that is electrically contact-connected to the photodiode, wherein the photodiode comprises a first metallization 48 on a side facing the submount, the submount comprises a second metallization 54' on a side facing the photodiode, the first metallization and the second metallization defining a eutectic mixture, and the photodiode and the submount are directly bonded to one another by means of the eutectic mixture of the first and second metallizations.

In regard to claim 15, Uchida further discloses one or more alignment marks 60a-b situated on the submount.

In regard to claim 16, wherein the photodiode comprises/or is a silicon chip.

In regard to claim 17, wherein the photodiode and the submount each have an outer contour that differs from one another and, accordingly, comprise regions that protrude relative to one another.

In regard to claim 18, Uchida comprises contact pads situated on a region of the submount that protrudes with respect to the photodiode, wherein said contact pads are connected to the second metallization of the submount.

In regard to claim 19, wherein the photodiode comprises an optically active area situated on a region of the photodiode that protrudes with respect to the submount, region 46, for example.

In regard to claim 28, see fig. 4.

In regard to claims 29 and 30, wherein the second metallization extends to a pair of contact pads on the submount that are spaced from the photodiode. Fig. 4.

In regard to claims 31 and 32, the metals are planar. Fig. 4.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 20-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Uchida as applied to claims 14-19 above and further in view of Nishizawa (US 4,636,647, previously cited.)

In regard to claim 20, Uchida discloses all of the claimed limitations as mentioned above. However, Uchida does not explicitly describe the metal is made of gold/gold-tin.

The mixture of such materials is widely used and common in the art. The compound provides a lower melting point compared to single material layer. For instance, Nishizawa, in fig. 9, discloses an analogous device and further use a eutectic mixture such as AuSn compound layer 51 for the connection between the photodiode 59 and the element 52 in order to provide a low melting point mixture therein.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to use a common mixture of materials as taught by Nishizawa in the Uchida's in order to take the advantage as mentioned.

In regard to claim 21, Nishizawa further teaches that wherein one of the photodiode and the submount comprise a trench or window 53 to ensuring a connection between the photodiode and the submount only in defined regions not associated with the trench. See Nishizawa's figs. 6 and 9.

Response to Arguments

5. Applicant's arguments with respect to claims 14-21 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nathan W. Ha whose telephone number is (571) 272-1707. The examiner can normally be reached on M-TH 8:00-7:00(EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy can be reached on (571) 272-1705. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Nathan W. Ha/
Primary Examiner, Art Unit 2814